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R. Shaler

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Shunpei Yamazaki, et al. Art Unit : 2815
Serial No.: 09/302,679 ✓ Examiner : Lourdes Cruz
Filed : April 30, 1999
Title : ELECTRONIC DEVICE AND METHOD FOR MANUFACTURING THE
SAME

Commissioner for Patents
Washington, D.C. 20231

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AMENDMENT

Sir:

In response to the Official Action dated March 26, 2001,
Paper No. 8, in the above-referenced application, please amend
the above-identified application as follows.

In the Specification:

Please replace the paragraph beginning at page 7, line 16,
with the following rewritten paragraph:

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The anodic oxide film 108, 109 thus obtained is dense and
robust. The film thickness of the film obtained in the anodic
oxidation step can be controlled by adjusting the applied
voltage.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

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In the Claims:

Please amend the claims as follows.

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10. (Amended) An electronic device comprising:
a substrate; and
a film pattern provided over said substrate,
wherein said film pattern comprises a part selected from
the group consisting of an electrode and a wiring,
wherein said part of said film pattern comprises aluminum,
and
wherein said part of said film pattern contains carbon
atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less.

11. (Amended) A TV camera comprising:
a substrate; and
a film pattern provided over said substrate,
wherein said film pattern comprises a part selected from
the group consisting of an electrode and a wiring,
wherein said part of said film pattern comprises aluminum,
and
wherein said part of said film pattern contains carbon
atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less; and
TV camera parts, coupled to said substrate.

12. (Amended) A personal computer comprising:
a substrate; and
a film pattern provided over said substrate,
wherein said film pattern comprises a part selected from
the group consisting of an electrode and a wiring,
wherein said part of said film pattern comprises aluminum,
and
wherein said part of said film pattern contains carbon
atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less; and
personal computer parts, coupled to said substrate.

13. (Amended) A car navigation system comprising:
a substrate; and
a film pattern provided over said substrate,
wherein said film pattern comprises a part selected from
the group consisting of an electrode and a wiring,
wherein said part of said film pattern comprises aluminum,
and
wherein said part of said film pattern contains carbon
atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less; and
car navigation parts, coupled to said substrate.

14. (Amended) A TV projection system comprising:
a substrate; and

a film pattern provided over said substrate,
wherein said film pattern comprises a part selected from
the group consisting of an electrode and a wiring,
wherein said part of said film pattern comprises aluminum,
and
wherein said part of said film pattern contains carbon
atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less; and
TV projection system parts, coupled to said substrate.

15. (Amended) A video camera comprising:

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a substrate;
a film pattern provided over said substrate,
wherein said film pattern comprises a part selected from
the group consisting of an electrode and a wiring,
wherein said part of said film pattern comprises aluminum,
and
wherein said part of said film pattern contains carbon
atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less; and
video camera parts, coupled to said substrate.

REMARKS

Reconsideration and allowance of the above-referenced
application are respectfully requested.

Claims 10-21 and 34-39 stand rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Konuma. This contention has been obviated by the amendment of the claims herein.

As claimed, the invention defines an electronic device with a film pattern provided over a substrate. The film pattern has a part that is selected from the group consisting of an electrode or wiring. Part of the film pattern includes aluminum. This part may also have carbon atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less. The electrode or the wiring therefore contains these carbon atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less.

Column 2, lines 44-46 of Konuma states that the region of external layer mainly has aluminum oxide and also has carbon in a trace amount. Konuma also states at column 6, lines 8-10 that the external anodic oxide layer (surface) was found to contain carbon at a concentration of 1% or lower. Konuma also teaches at column 6, lines 26-29 that the anodic oxide process reduces concentration of impurities in the anodically oxidized aluminum. In this way, Konuma teaches impurity or carbon in the anodic oxide, but does not suggest that it contains carbon atoms at a concentration of 5×10^{18} atoms·cm⁻³ or less, as now claimed.

Yamazaki teaches that the semiconductor film contains a metal element. The Office Action alleges that it would have

been obvious to incorporate aluminum into this semiconductor film, since aluminum is widely used and common among semiconductor artisans and used for its semiconductor properties. Yamazaki also teaches (column 6, lines 3-6) that the concentration of other impurities such as nitrogen and carbon is preferred to be as low as possible. A specific concentration is preferably taught to be below $2 \times 10^{19} \text{ cm}^{-3}$. This concentration is a concentration of amorphous silicon to form an active layer.

Yamazaki teaches a metal and a carbon impurity contained in the semiconductor film that are the active layer. Yamazaki does not suggest that the electrode or the wiring has carbon atoms at a concentration (of $5 \times 10^{18} \text{ atoms} \cdot \text{cm}^{-3}$ or less as now claimed.)

The amendments to the claims also specify additional limitations, which thus obviate the double patenting rejection.

In view of the above amendments and remarks, therefore, all of the claims should be in condition for allowance. A formal notice to that effect is respectfully solicited.

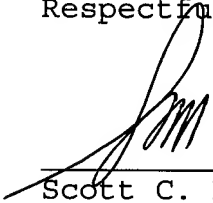
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Respectfully submitted,

Date: _____

8/20/01



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